

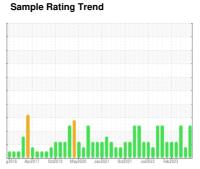
OIL ANALYSIS REPORT



NEW FLYER 0814

Component **Diesel Engine**

SAFETY-KLEEN PERFORMANC





DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

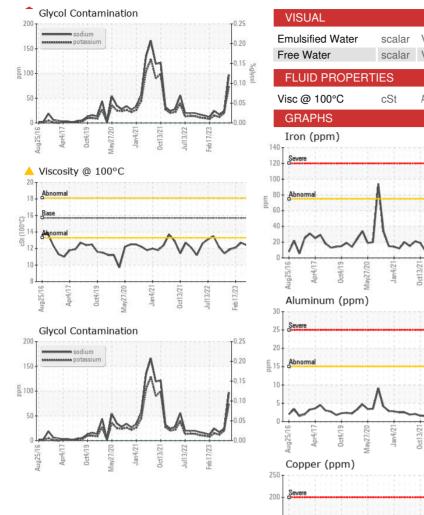
▲ Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

| CE PLUS XHD-7 15W40 (GAL) | | | | | | | | |
|----------------------------|----------|---------------|------------|-------------|-------------|-------------|--|--|
| SAMPLE INFORM | NATION | method | limit/base | current | history1 | history2 | | |
| Sample Number | | Client Info | | WC0849854 | WC0811618 | WC0811528 | | |
| Sample Date | | Client Info | | 23 Aug 2023 | 07 Jul 2023 | 31 May 2023 | | |
| Machine Age | kms | Client Info | | 368448 | 358543 | 0 | | |
| Oil Age | kms | Client Info | | 0 | 0 | 0 | | |
| Oil Changed | | Client Info | | N/A | N/A | N/A | | |
| Sample Status | | | | SEVERE | ABNORMAL | SEVERE | | |
| WEAR METALS | | method | limit/base | current | history1 | history2 | | |
| Iron | ppm | ASTM D5185(m) | >75 | 22 | 24 | 25 | | |
| Chromium | ppm | ASTM D5185(m) | >5 | <1 | <1 | <1 | | |
| Nickel | ppm | ASTM D5185(m) | >4 | 0 | 0 | 0 | | |
| Titanium | ppm | ASTM D5185(m) | >2 | 0 | 0 | 0 | | |
| Silver | ppm | ASTM D5185(m) | >2 | 0 | 0 | 0 | | |
| Aluminum | ppm | ASTM D5185(m) | >15 | 3 | 3 | 2 | | |
| Lead | ppm | ASTM D5185(m) | >25 | <1 | <1 | 0 | | |
| Copper | ppm | ASTM D5185(m) | >100 | 2 | <1 | <1 | | |
| Tin | ppm | ASTM D5185(m) | >4 | 0 | 0 | 0 | | |
| Antimony | ppm | ASTM D5185(m) | | 0 | 0 | 0 | | |
| Vanadium | ppm | ASTM D5185(m) | | 0 | 0 | 0 | | |
| Beryllium | ppm | ASTM D5185(m) | | 0 | 0 | 0 | | |
| Cadmium | ppm | ASTM D5185(m) | | 0 | 0 | 0 | | |
| ADDITIVES | | method | limit/base | current | history1 | history2 | | |
| Boron | ppm | ASTM D5185(m) | | 5 | 2 | 11 | | |
| Barium | ppm | ASTM D5185(m) | | 0 | 0 | 0 | | |
| Molybdenum | ppm | ASTM D5185(m) | | 68 | 63 | 56 | | |
| Manganese | ppm | ASTM D5185(m) | | <1 | <1 | <1 | | |
| Magnesium | ppm | ASTM D5185(m) | | 905 | 1000 | 895 | | |
| Calcium | ppm | ASTM D5185(m) | | 966 | 1050 | 1033 | | |
| Phosphorus | ppm | ASTM D5185(m) | | 1005 | 1051 | 942 | | |
| Zinc | ppm | ASTM D5185(m) | | 1100 | 1196 | 1046 | | |
| Sulfur | ppm | ASTM D5185(m) | | 2372 | 2459 | 2195 | | |
| Lithium | ppm | ASTM D5185(m) | | <1 | <1 | <1 | | |
| CONTAMINANTS | ; | method | limit/base | current | history1 | history2 | | |
| Silicon | ppm | ASTM D5185(m) | >25 | 6 | 5 | 6 | | |
| Sodium | ppm | ASTM D5185(m) | | 97 | 23 | 17 | | |
| Potassium | ppm | ASTM D5185(m) | >20 | 75 | 20 | 12 | | |
| Fuel | % | ASTM D7593* | >3.0 | 6 | 4.1 | 6.3 | | |
| Glycol | % | ASTM D7922* | | 0.0 | 0.0 | 0.0 | | |
| INFRA-RED | | method | limit/base | current | history1 | history2 | | |
| Soot % | % | ASTM D7844* | >6 | 0.3 | 0.6 | 0.5 | | |
| Nitration | Abs/cm | ASTM D7624* | >20 | 9.3 | 11.9 | 10.4 | | |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | 23.3 | 26.0 | 24.7 | | |
| FLUID DEGRADA | ATION | method | limit/base | current | history1 | history2 | | |
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | 20.9 | 26.8 | 25.2 | | |



OIL ANALYSIS REPORT



| VISUAL | | method | limit/l | oase current | history1 | history2 |
|--|---------|----------------------|----------|--------------------------------|---------------------|--|
| Emulsified Water | scalar | Visual* | >0.2 | NEG | NEG | NEG |
| Free Water | scalar | Visual* | | NEG | NEG | NEG |
| FLUID PROPER | | method | limit/l | | history1 | history2 |
| Visc @ 100°C | cSt | ASTM D7279(m) | 15.7 | <u>▲</u> 12.2 | 13.1 | <u> </u> |
| GRAPHS Iron (ppm) | | | | Lead (ppm) | | |
| 140 | | | | 60 Lead (ppin) | | |
| 120 - Severe | 1211 | 1 / 4 1 2 1 2 1 2 | | 50 - Severe | | |
| 80 - Abnormal | 1 | | | 40 | | |
| 60 April Apr | 1 | | 11111 | Abnormal | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |
| 40 | 1 | 1 | 11111 | 10 | | |
| 20 0 | , ~ | V. | 11111 | 0 | | |
| Aug25/16 Apr4/17 Oct4/19 | Jan4/21 | Oct13/21 Jul13/22 | 27//10 | Aug25/16 Apr4/17 Oct4/19 | May27/20 | Juli 3/22 |
| Aluminum (ppm) | , | 0 5 3 | <u> </u> | ₹ Chromium (p | ≥ | |
| 30 | | | | ¹² T | PIII) | |
| 25 Severe | | | | 10 - Severe | | |
| 20 - 15 - Abnormal | | | | 8 | | |
| 15 Abnormal | | | | Abnormal | | |
| 5 | Λ | | | 2 | ٨ | A |
| | , ` | | | | \sim | |
| Aug25/16 Apr4/17 Oct4/19 | Jan4/21 | Oct13/21 Jul13/22 | 7// 100 | Aug25/16 Apr4/17 | May27/20 Jan4/21 | Juli 3/22 |
| Copper (ppm) | | | _ | ⊲ Silicon (ppm) | ≥ - | , |
| 250 | | | | 60 | | |
| 200 - Severe | | | | 50 - Severe | | |
| 150 | | | | E | | |
| 100 Abnormal | | | | Abnormal 20 | | |
| 50 | | | | 10- | | Λ. |
| 20 13 | 21 | 22 | 3 | | 202 | 22 22 |
| Aug25/16- Apr4/17- 0ct4/19 | Jan4/21 | Oct13/21 Jul13/22 | 7/ | Aug25/16 Apr4/17 Oct4/19 | May27/20 | Jul13/2 |
| Viscosity @ 100°0 | | | | Fuel Dilution | _ | |
| Abnormal | | | | 12.0 | | |
| 10 Rase | | | | 8.0 | Λ | 1 |
| 14 Aunomal | | | | | / | 11/1, |
| 3 12- | ~ | WV | ~^ | 4.0 Abnormal | M | VVV |
| 10- | | | | 2.0 - 1 N | outpeach V | |
| 716 | /21 | 721 | 3 | 0.0 | 720- | 722 |
| Aug25/16 Apr4/17 0ct4/19 | Jan4/21 | Oct13/21 Jul13/22 | B | Aug25/16. Apr4/17. | May27/20 | Juli 3/22 |



CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number : 5632017

: WC0849854 : 02578957

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received

Diagnosed Diagnostician : Kevin Marson **Test Package**: MOB 1 (Additional Tests: Glycol, PercentFuel)

: 30 Aug 2023

: 29 Aug 2023

CITY OF HAMILTON 2200 UPPER JAMES,, MOUNTAIN TRANSIT STOREROOM MOUNT HOPE, ON CA LOR 1W0

Contact: Jeff Parr jeff.parr@hamilton.ca T: (905)546-2424

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.

Validity of results and interpretation are based on the sample and information as supplied.

F: (905)679-4502